

EV DYNACORD®

Vector

Mixing Consoles

OPERATING AND SERVICE INSTRUCTIONS

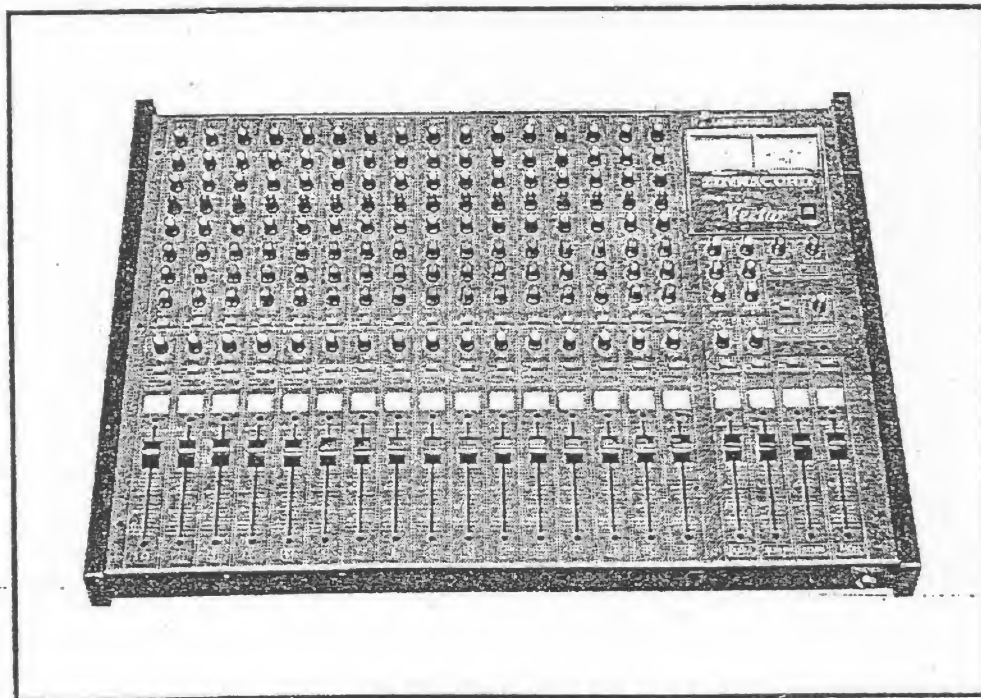


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1 INSTALLATION

1.1 Rack Mounting

The Vector 8 mixer may be placed in a standard 19 inch equipment rack. It requires 17.5 inches of vertical space (10 standard EIA vertical rack spaces). For more information on rack-mount installation, refer to Section 4 and Figure 9 of this manual.

1.2 Ventilation

The Vector series mixing consoles should not be used in areas where the ambient temperature exceeds 60°C (140°F).

2 SIGNAL CONNECTIONS

2.1 Input Connections

Balanced microphone inputs may be made to the 3-pin XLR-type connector. Balanced line inputs may be made to the ¼-inch phone (TRS) connector. For single-ended inputs, strap the low (-) input (pin 3 on XLR or *Ring* on ¼-inch phone) to ground. Otherwise, the electronically balanced input stage will see 6 dB less input signal level than with a balanced input. Refer to Figure 1 for typical input connections.

2.2 Output Connections

The main outputs of the mixing console are electronically servo-balanced. Balanced output connections

may be made to the male 3-pin XLR-type connectors. For single-ended outputs, strap the low (-) output (pin 3 on XLR or *Ring* on ¼-inch phone) to ground. Otherwise, the electronically servo-balanced output stage will produce 6 dB less output signal level than with a balanced output connection. Unbalanced connections may be made to the other ¼-inch phone (TRS) connectors. Refer to Figure 2 for typical output connections.

2.3 Insert Connections

Signal processing equipment may easily be inserted in the signal path by using the ¼-inch phone (TRS) insert connectors. The external device must have line level unbalanced inputs and outputs. The output signal from the mixing console is on the *Tip* and the input signal is on the *Ring*. The *Sleeve* is ground. Refer to Figure 3 for a typical insert connection.

3 OPERATION

3.1 Input Channel Controls

(Refer to Figure 4)

The input channel is the beginning of the signal amplification chain of the mixer. Each input channel will accept one signal source which may be equalized, have effects added and sent to the monitor and main system for the audience to hear. Each input has a low-impedance microphone input (the 3-pin XLR connector) and a high-impedance microphone or line

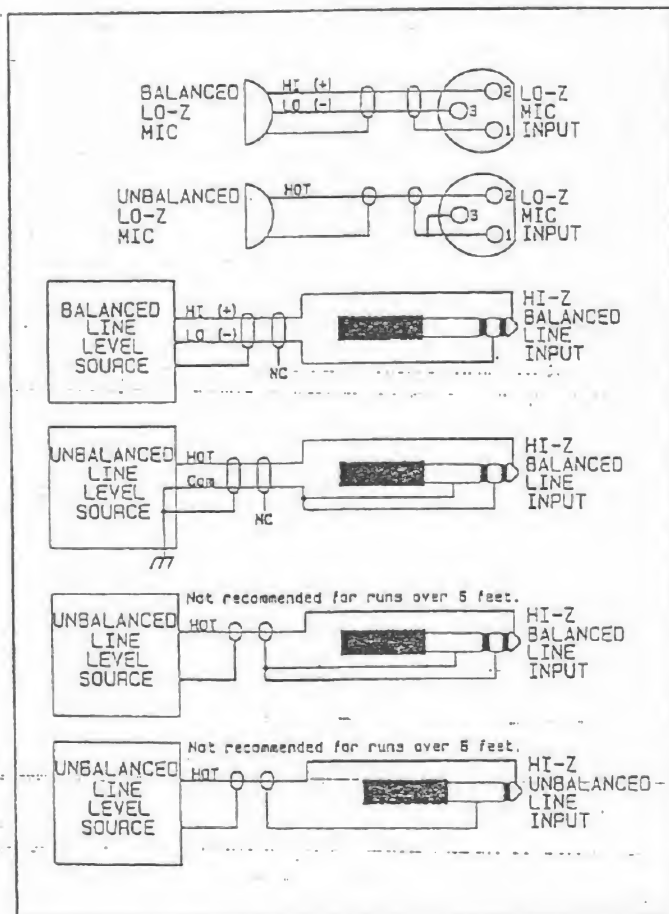


Figure 1: Typical Input Connections

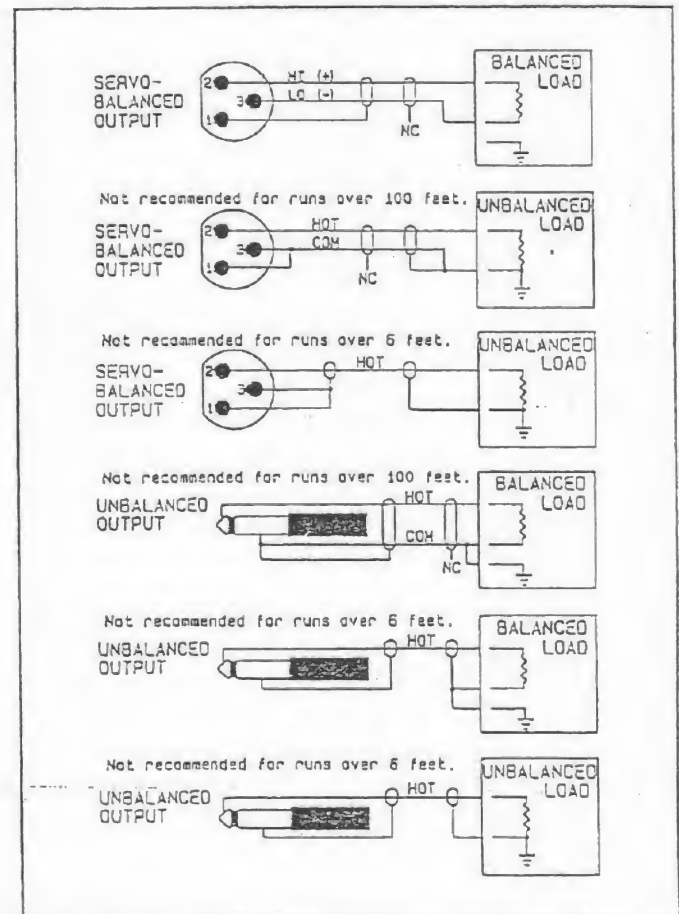


Figure 2: Typical Output Connections

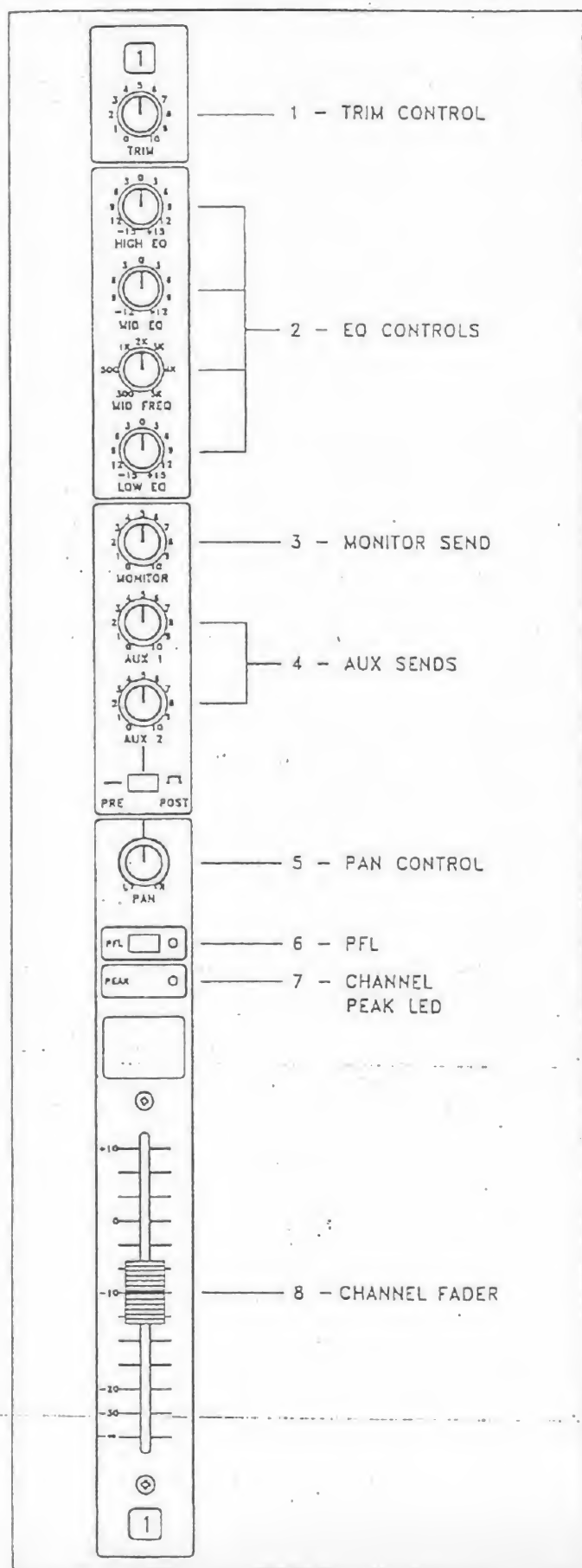


Figure 4: Input Channel Controls

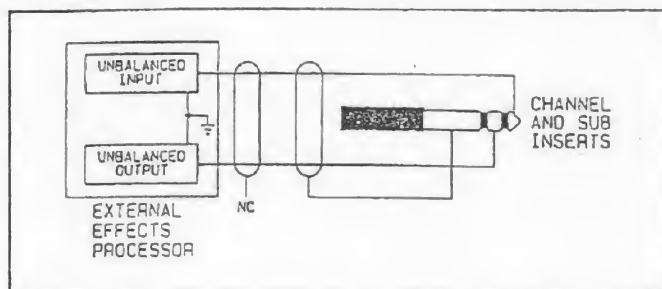


Figure 3: Typical Insert Connection

input (1/4-inch phone jack). The line input will accept signals from an instrument, high-impedance microphone, tape/CD player, keyboard or electronic drums or almost any other audio source. Always make sure that the channel fader (see Figure 4) and/or master faders (see Figure 5) are down before plugging or unplugging input sources.

1. **TRIM Control:** This control adjusts the gain of the input amplifier to accommodate the wide variation in signal strength presented to the mixer by the endless variety of signal sources. The TRIM control allows the amplification of each individual input source to be optimized. Correct setting of the TRIM control results in the best signal-to-noise ratio (no hiss), the greatest dynamic range, and the freedom from overload distortion.

To set the TRIM control correctly, first set the channel fader at minimum and depress the channel PFL switch. Make sure the source (mic, instrument) that is plugged into the channel is used at its nominal performance level. Increase the TRIM level until the level of the PFL meter reaches 0 VU. Gradually bring the channel fader up to the desired listening level. This insures that nominal level is maintained throughout the input channel.

If the level is too low in the TRIM's gain circuit, hiss will occur. If the level is too high in the TRIM circuit, overload distortion will occur. Keeping the channel faders at nominal level with proper setting of the TRIM control will keep the system sounding its best and its quietest.

2. **EQ Controls:** Equalization can be more simply described as sophisticated tone control. The EQ circuits used in the *Vector* series have a substantial amount of sound shaping capability.

This wide range can be a bonus when dealing with widely-varying instrument signals, poor acoustics or other problems. The EQ should be used sparingly, however, for the best results. Too liberal use of the EQ can cause phasing problems, add noise, and use up a lot of amplifier power.

- 2A. **HIGH EQ:** The high EQ circuit is a shelving type filter at 10 kHz with a ± 15 dB range. It controls the treble content of the input signal. Turning the control counterclockwise decreases the amount of treble, clockwise increases it.

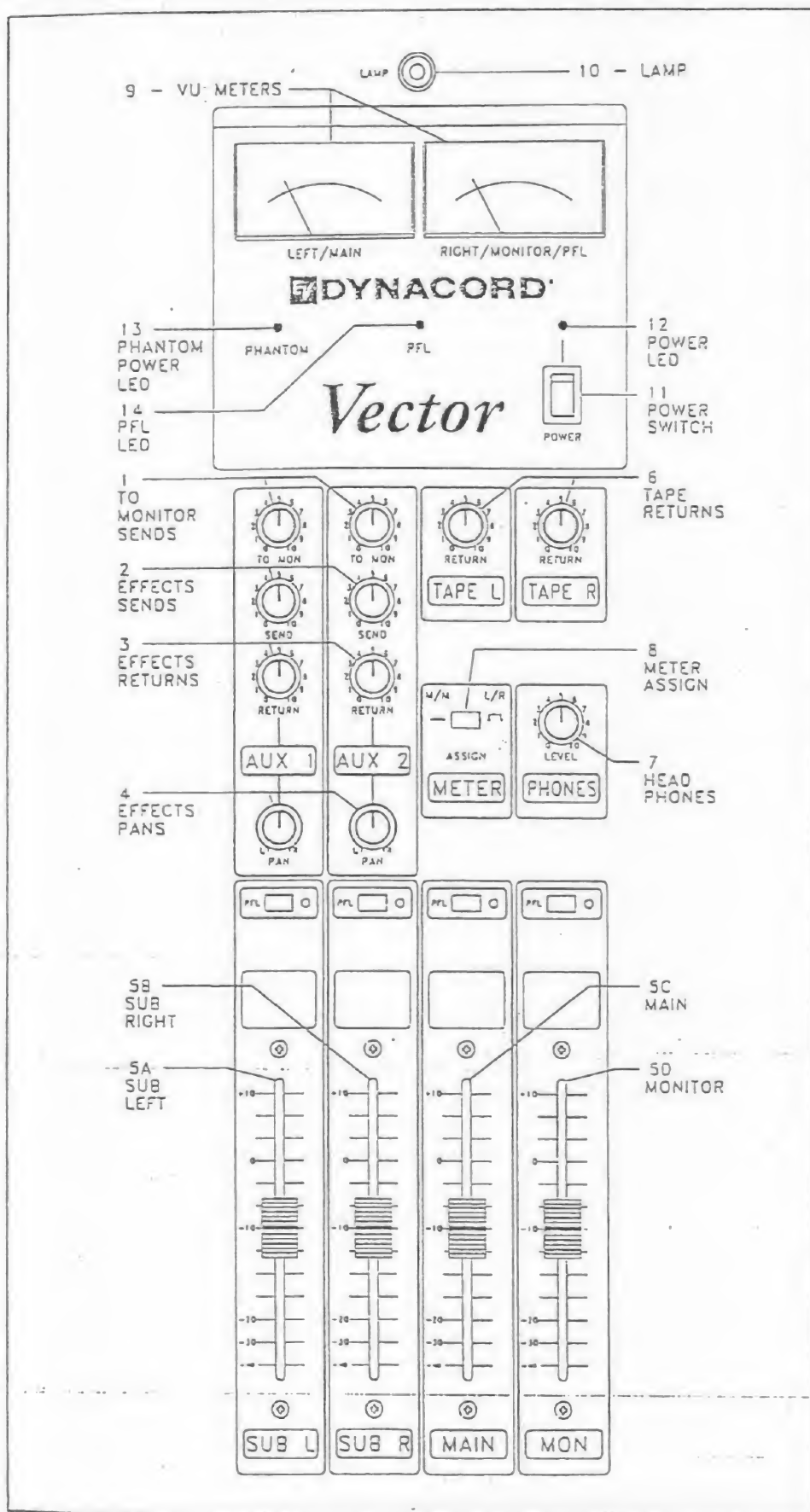


Figure 5: Output Section Controls

2B. MID EQ: The mid EQ circuit is a peaking type filter with a ± 15 dB range. It controls the midrange content of the input signal. Turning the control counterclockwise decreases the amount of midrange, clockwise increases it.

2C. MID Frequency: The mid frequency circuit controls the frequency range from 300 Hz to 5 kHz of the MID EQ control. By varying the FREQUENCY, different tonal perspectives can be created. The sweepable frequency gives much more control flexibility.

2D. LOW EQ: The low EQ circuit is a shelving type filter at 100 Hz with a ± 15 dB range. It controls the bass content of the input signal. Turning the control counterclockwise decreases the amount of bass, clockwise increases it.

3. MONITOR Send: The monitor send control sets the level of the input signal in the monitor mix. It is independent of all input channel controls except the TRIM control. It is not affected by the channel EQ controls or slide fader. Thus, it is not affected by changes in the main or house mix.

4. AUX Sends: The AUX 1 send control sets the level of that signal in the AUX 1 mix and is post-fader, which means that it is affected by the gain setting of the fader. The AUX 1 send may also be used as a mono send for recording.

The AUX 2 send control sets the level of that input signal in the AUX 2 mix and is switchable PRE or POST fader. In the PRE position, it serves as another MONITOR OUT, and in the POST position, another EFFECTS OUT.

5. **PAN Control:** Short for "panoramic potentiometer", this control allows the channel's input signal to be placed within the stereo image by assigning more or less of the signal to the left or right subgroup controls. Turning the panpot to the left of center moves the apparent source toward the left channel. Turning the panpot to the right of center moves the apparent source toward the right channel. Centering the control makes the apparent source centered between the channels. If all inputs are panned center, the result is mono.

Some users pan all the instruments to one side and the vocals to the other and use the subgroup controls to balance them.

6. **PFL:** PFL(pre-fader listen) allows the operator to preview any pre-fader signal individually or in combination through the headphone output. To activate the PFL simply depress the appropriate switches. The status indicator will light indicating which pre-fader signals are being monitored. When the PFL circuit is engaged by depressing a PFL switch, both the right meter and the headphone circuit will monitor the audio level of the selected channel(s).

In the normal position (all PFL switches off), the right meter monitors the METER switched bus, and the headphone circuit monitors the output of the SUB L and SUB R outputs. The audio level of the headphone jack is controlled by the PHONES control.

7. **Channel PEAK LED:** The channel PEAK LED monitors the input channel circuit for clipping or overload (both before and after the EQ section). If it lights, the signal is bordering on distortion. This will be heard in the output as a harsh, blaring sound on volume peaks. This might be caused by excessive boost in the channel equalization controls, or a TRIM control setting that is too high for the input signal. Generally, readjusting the TRIM control will cure this undesired condition.
8. **Channel Fader:** The slide fader controls the output level of the channel as it is fed to the subgroups. The control should be normally set around the "0" mark (nominal level). At this point, the signal level is high enough to keep noise from creeping in and low enough to insure plenty of headroom and freedom from clipping distortion. If the fader must run wide open to get enough level, turn up the TRIM control judiciously or increase the level setting of the left and right subgroup controls. Conversely, if the fader must be pulled way back to get the right level, the TRIM control or stereo subgroup should be adjusted. Adjust the TRIM control if the PEAK LED lights, otherwise adjust the stereo subgroups. For optimum performance, the channel FADERS should be run close to the "0" mark.

3.2 Output Section Controls (Refer to Figure 5.)

1. **TO MON Send (AUX 1, AUX 2):** The TO MON level control determines the amount of externally generated effects signals in the monitor mix. With the use of this control, the performers can hear the added effects in their monitors.
2. **Effects SEND (AUX 1, AUX 2):** The effects SEND control sets the level of the signal appearing at the effects send output jack(s) going to any type of outboard effects device(s) such as a digital reverb, flanger, compressor/limiter, etc. The source of this signal is via the individual AUX 1 and AUX 2 send level controls on each input channel.
3. **Effects RETURN (AUX 1, AUX 2):** The effects RETURN level control determines the amount of externally generated effects signals in the main mix. This signal is mixed into the left and right stereo sub channels via the AUX 1 and AUX 2 PAN control(s).
4. **PAN Control (AUX 1, AUX 2):** The effects PAN control (AUX 1, AUX 2) directs the signal coming from the effects RETURN level control(s) into the left and/or right sub channels. The control works in an identical way to the input channel PAN control.
5. **Master Section Controls:** The master section controls affect the subgroup, main, and monitor output levels.

The use of subgroups can be shown by this example: If the input channel PAN controls are set fully clockwise for all the vocals, then the SUB R fader has been assigned as a "vocal submaster". If the SUB R fader is raised or lowered, the vocal level in the mix can be set while preserving the input channel balance set among the vocalists.

- 5A. **SUB L (Left Submaster):** Controls the volume of the left stereo output channel. It is also used as a subgroup master.
- 5B. **SUB R (Right Submaster):** Controls the volume of the right stereo output channel. It is also used as a subgroup master.
- 5C. **MAIN Master:** The MAIN (monaural) output is the summed mix of the left and right stereo outputs. The MAIN master controls the volume of the output.
- 5D. **MON (Monitor Master):** Controls the volume of the monitor output signal. The monitor output is a mix of the individual channel monitor sends.
6. **TAPE L and TAPE R:** These controls adjust the level of the tape left and tape right returns.
7. **PHONES (Headphone Level):** The PHONES gain control sets the level at the headphone jack (front panel on the Vector 12, 16, and 24; top panel on the Vector 8). Any signal selected by depressing a PFL switch will be monitored through the headphone jack. Without any of the PFL switches

depressed, the headphone circuit monitors the left and right subgroup outputs in stereo.

8. **METER Assignment Switch:** A push-push switch is provided to allow the user to select the points in the circuit which are monitored by the VU meters. When the switch is depressed, the indication will be the audio level at the MAIN and MONITOR outputs. In the other (non-depressed) position, signal level at the SUB Left and SUB Right outputs will be shown.
9. **VU Meters:** Two "B" scale analog VU meters with integral peak lights are used to indicate signal level at selected points in the circuit (see meter assignment switch and PFL switches). The meter scale indicates a range from -20 dB to +4 dB with 0 VU = +4 dBu, a standard in the industry. The integral peak light, located in the upper right-hand corner of each meter, shows when the output is above the +14 dB level and the headroom is being rapidly exhausted and distortion is imminent. The meters read either left/right stereo, or main/monitor level. If any of the PFL switches are depressed, the right meter will monitor the PFL bus signal. A PFL LED is provided on the meter bridge to acknowledge the condition.
10. **LAMP Connector:** A BNC-type socket is provided at the top of the mixer panel to accommodate a Littelite[®] gooseneck lamp to allow operation of the board in low-light conditions. These lamps are available in different lengths from many professional sound dealers and attaches without tools. The LAMP connector can accommodate either normal or high intensity lamps.
11. **POWER Switch:** The power switch is used to turn the main ac power on and off.
12. **POWER Indicator:** This LED (green) is illuminated when the main ac power is on.
13. **PHANTOM Power Indicator:** This LED (red) indicates when phantom power is present at the microphone inputs.
14. **PFL Indicator:** This LED (amber) indicates when the PFL circuit is activated and shows that the right meter is reading the PFL bus signal level.

3.3 Rear Panel Input Connectors (Refer to Figure 6.)

The Vector series mixer can accept program material covering a dynamic range of over 100 dB. All of the line inputs can safely accept signal levels up to +20 dBu. (See specifications for details.) All line inputs are made through standard ¼-inch phone jacks (except for TAPE inputs). Several of the inputs that directly access the mix buses can be used to stack mixers together without using up an input channel. The stacking group includes the AUX 1, AUX 2, and MONITOR inputs. The AUX return inputs may also be used as stacking inputs. For stereo subgroup stacking, set the AUX 1 PAN control to L, and the AUX 2 PAN control to R and use AUX 1 and 2 RETURNS for left and

right stacking, respectively.

1. **Balanced Low-Z Mic Input:** A female 3-pin XLR-type connector is used for balanced low-impedance microphones. The MIC INPUT is actively balanced; active balancing allows elimination of the input transformer (along with its limitations) while maintaining the RF and hum rejection of a good transformer-coupled input.

It is important during operation or testing of the mixer that all faders remain fully down whenever the mic input is not properly terminated with a microphone or an equivalent 150 ohm source. An open mic input invites the introduction of high noise levels which could produce lower quality sound or an incorrect test measurement.

2. **High-Z Line Input:** A standard ¼-inch phone jack is used for balanced or unbalanced line level signals. Examples of these signals include most electronic keyboards, drum machines and synthesizers, tape decks, CD players, etc. All input channel controls, including the variable TRIM control, affect the LINE input. Maximum input level before preamp clipping is +24 dBu (12.3 Vrms).

If a sufficient signal level is not possible with the TRIM control at its furthest clockwise position, the input signal must then be treated as a mic level signal and connected to the microphone input. If necessary, use an appropriate balancing transformer or a direct box with the microphone (XLR) input.

3. **AUX RETURN (AUX 1 and AUX 2):** The AUX RETURN jack(s) feed signals to the subgroup buses. The signal is controlled by the RETURN and PAN front panel controls.

4. **AUX IN (AUX 1 and AUX 2):** The AUX IN jack(s) will put signals directly into the respective AUX bus. Crosstalk and buffering protection are provided by the input circuit and the signal level is controlled by the external source.

5. **MON IN:** The MON IN jack will put signals directly onto the monitor bus. Crosstalk and buffering protection are provided by the input circuit and the signal level is controlled by the external source.

6. **TAPE RETURN:** These RCA jacks allow a tape deck or CD player to be directly connected to the mixer. The input is fed into the left and right subgroups and its level is controlled by the TAPE L and TAPE R controls. These jacks can also be used as other AUX returns.

7. **INSERT L and R (SUB L and SUB R):** A space-saving 3-conductor (stereo) phone jack is used for both output from SUB L and SUB R respectively, and for the return to the mixer's master section from an external processing device. Be sure that the device that is to be patched in has line level unbalanced inputs and outputs. The signal at the insert jack can drive loads of 2000 ohms or greater

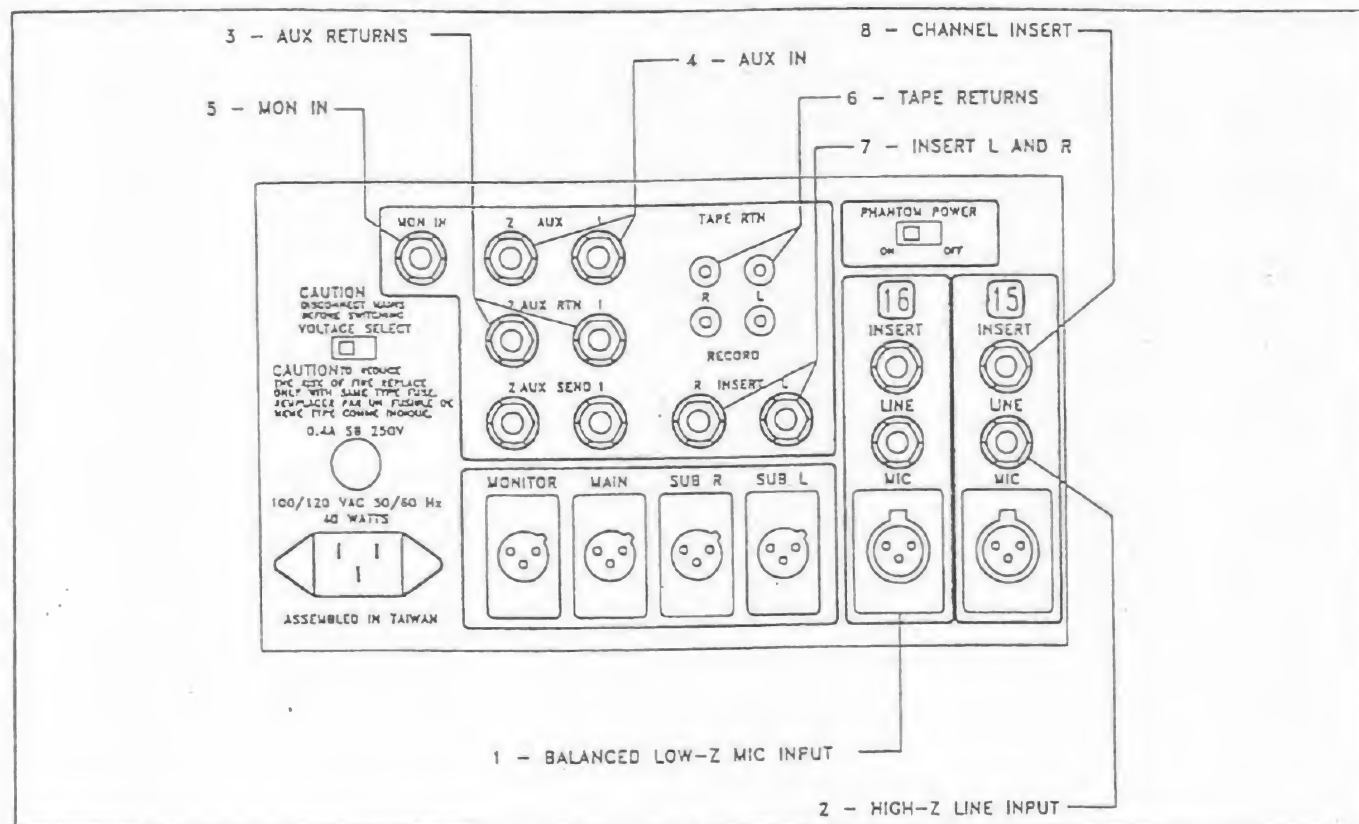


Figure 6: Rear Panel Input Connectors

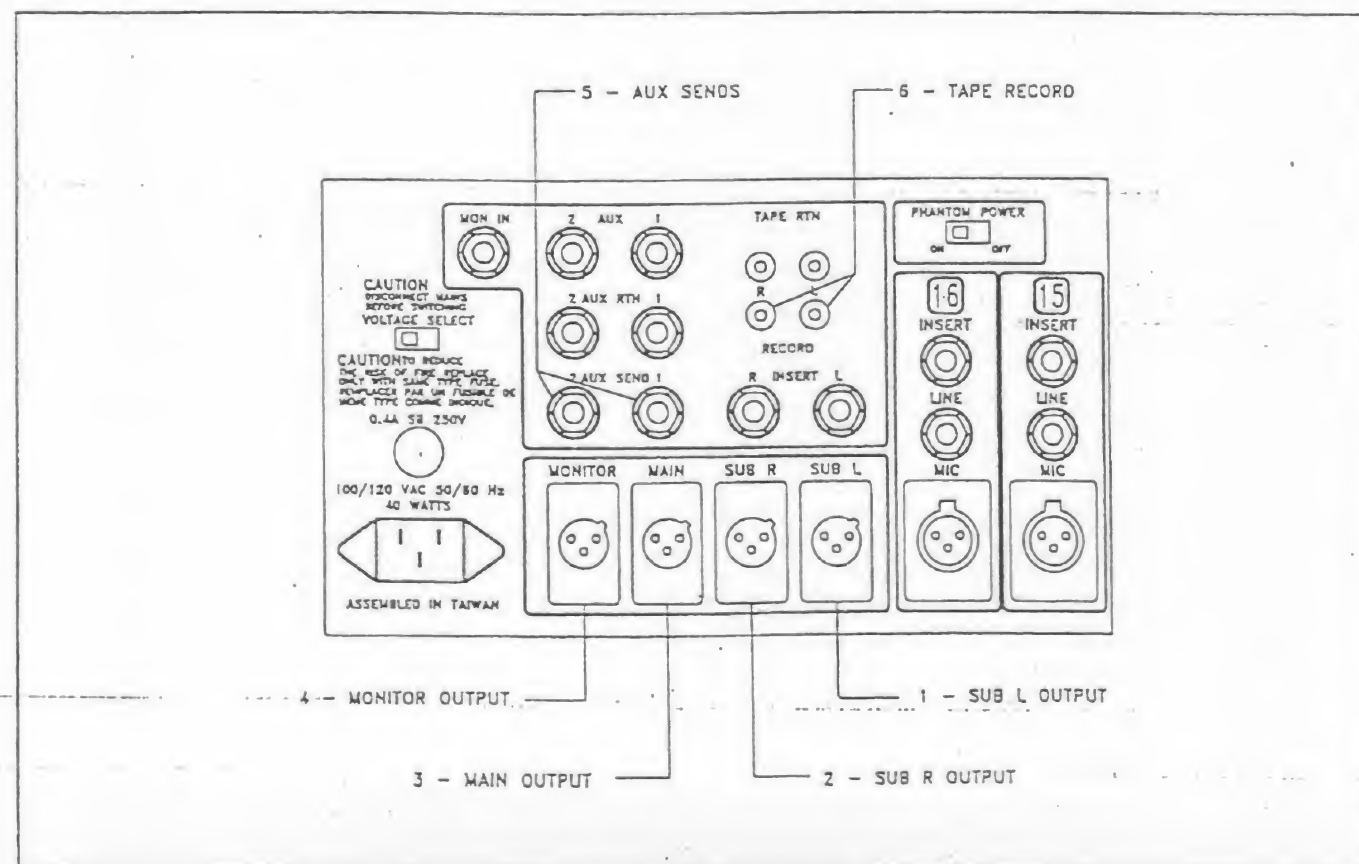


Figure 7: Rear Panel Output Connectors

and the external processing device should have a low output internal impedance (100 ohms or less). Refer to Section 3.3 of this manual and Figure 3 for proper connections.

A nominal input signal is a level of +4 dBu; the maximum level is +20 dBu.

8. **Input Channel INSERTs:** A space-saving, 3-conductor (stereo) phone jack is used for both output from the input channel and for the return to the input channel from an external processing device. Be sure that the device that is to be patched in has line level unbalanced inputs and outputs. The signal at the insert jack can drive loads of 2000 ohms or greater and the external processing device should have a low output internal impedance (100 ohms or less). Refer to Section 3.3 of this manual and Figure 3 for proper connections.

A nominal input signal is a level of +4 dBu; the maximum level is +20 dBu.

3.4 Rear Panel Output Connections (Refer to Figure 7.)

In the *Vector* series mixers, the SUB L, SUB R, MAIN, and MONITOR outputs are servo-balanced and made through chassis-mount male 3-pin XLR-type connectors to a maximum level of +24 dBu (12.3 Vrms).

All other output connections are line level, unbalanced, and made through standard ¼-inch phone jacks (except for RECORD OUT).

1. **SUB L Output:** This left subgroup output is derived by summing all of the points (channels and external) assigned to the left subgroup bus. A PAN control rotated fully counterclockwise to the "L" position will assign that signal only to the left bus.
2. **SUB R Output:** This output is the right subgroup equivalent of the SUB L output.
3. **MAIN Output:** The MAIN output is the summed mix of the left and right subgroup outputs. Since the *Vector* series are true subgroup mixers, all signals that appear in the main mix must come through the subgroup channels.
4. **MONITOR Output:** The MONITOR output signal is the sum of all the input channel monitor sends and the external monitor input signal.
5. **AUX SEND (AUX 1 and AUX 2):** The AUX SEND output signal is the sum of all of the input channel AUX sends (PRE or POST fader) plus any signal coming through the AUX IN input.
6. **TAPE RECORD:** These output signals are the sum of all the input channels and effects with their position in the L + R stereo mix. The TAPE RECORD output is via RCA-jacks fixed at -10 dBV for easy interfacing and compatibility with semi-pro and hi-fi tape decks.

3.5 Rear Panel Switches (Refer to Figure 8.)

1. **PHANTOM POWER Switch:** This switch turns the phantom power supply on and off. The phantom power supply provides power for condenser-type microphones through the microphone cable. When switched on, it provides 48 volts dc at pins 2 and 3 on all of the microphone input connectors. Pin 1 (the shield conductor) provides the ground return path. This will power standard condenser microphones. When switched on or off, the voltage will slowly ramp up or down; it takes a few seconds to reach full level. This prevents unwanted transients from reaching the microphone inputs. When the switch is engaged, a red LED will light on the meter bridge to confirm its operation.
2. **VOLTAGE SELECT Switch:** The *Vector* series are capable of operation at 115 or 230 Vac, 50 or 60 Hz. To safely accomplish a voltage change, follow these steps:

1. Turn the mixer off and completely disconnect the ac power cord.
2. If the unit is used for 115 Vac (100 120 Vac) operation, be sure a 0.4 amp Slo-Blo® 3AG fuse (0.5 amp fuse in Vector 24) is installed in the fuse holder on the connector panel. If the unit is used for 230 Vac (220 240 Vac) operation, be sure a 0.25 amp Slo-Blo® 5×20 mm (supplied) fuse is installed in the fuse holder.
3. Change the chassis-mounted switch on the connector panel to the correct corresponding voltage.
4. Plug the power cord in the desired ac line and resume normal operation.

CAUTION: Before attempting to move this switch, the mixer must be turned off and the power cord disconnected.

Slo-Blo® is a registered trademark of Littelfuse®, Inc.

4 MOVEABLE REAR PANEL ON THE VECTOR 8 MIXER

One example of the versatility of the *Vector* 8 mixer is that it can be either rack-mounted in a standard 19 inch equipment rack or mounted in a tabletop. To accommodate a rack-mount installation, the *Vector* 8 is supplied with its connector panel placed on its bottom. This prevents the input/output connectors from using up valuable vertical rack space. The connector panel may be moved to the rear of the mixer to accommodate a tabletop installation. Refer to Figure 9 to move the connector panel to the rear. When moving this panel to the rear, care should be taken not to pinch any cables between the two panels.

5 WRITE-ON LABELS

In order to label each channel without marring the surface of the mixer, removable stick-on labels are available from any office supply outlet. Labels that are recommended are Presaply® Removable Labels by Dennison; part number Den-43-540; dimensions are ¾" × 1".

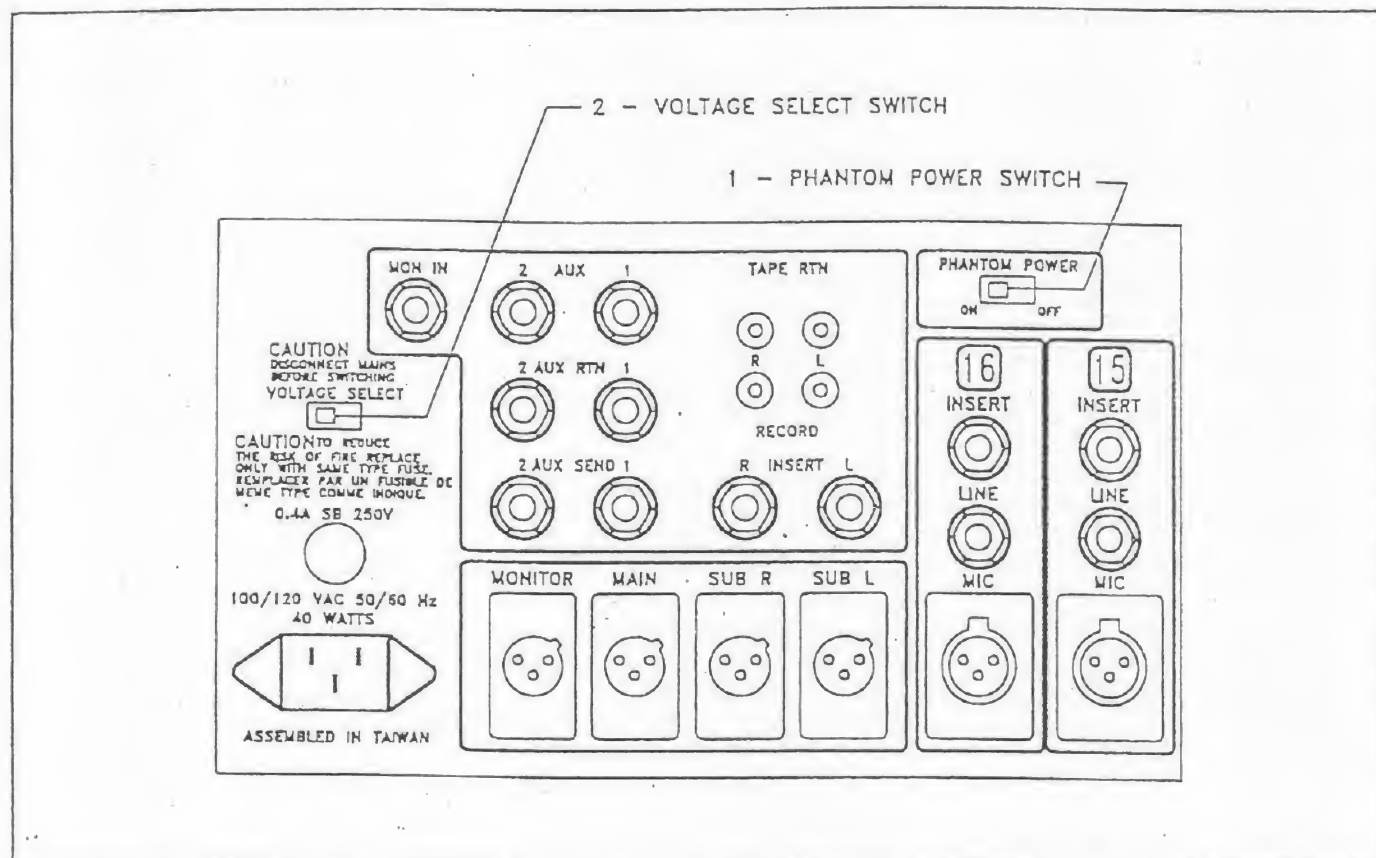


Figure 8: Rear Panel Switches

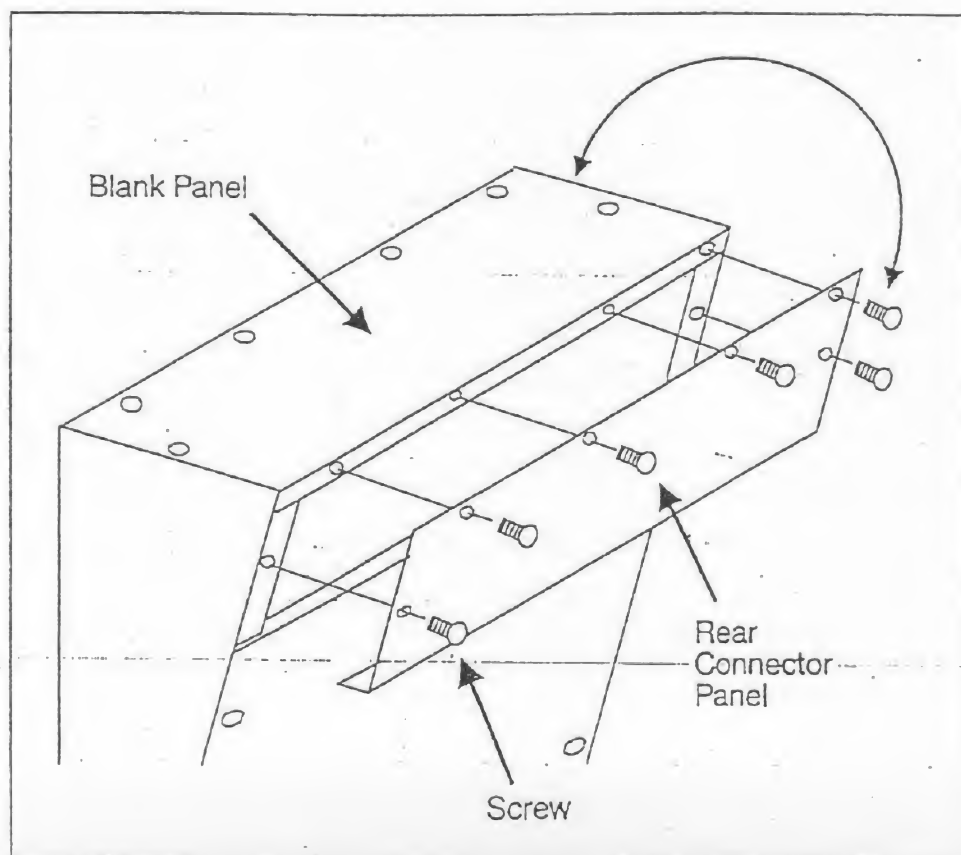


Figure 9: Vector 8 Channel Mixer Moveable Rear Panel

Operating and Service Instructions for the EV/DYNACORD Vector Series Mixing Console

6 SYSTEM SPECIFICATIONS

Testing Conditions: 120 Vrms, 60 Hz line voltage maintained.

Frequency Response: 20 Hz to 20 kHz, +1/-3 dB, +4 dBu in 600 ohms.

Total Harmonic Distortion:
+4 dBu in 600 ohms, 20 Hz to 20 kHz: <0.05%.
+24 dBu in 600 ohms, 20 Hz to 20 kHz: <0.10%.

Noise:
(A-weighted, R = 150 ohms, Channel TRIM minimum)
Equivalent Input Noise: -131 dBV.
Residual Noise: -87 dBV.
SUB OUT.
Master fader nominal, all Input faders minimum: -81 dBV.
Master fader and all Input faders nominal: -78 dBV.
AUX SEND
Master fader nominal, all AUX sends minimum: -77 dBV.
Master fader and all AUX sends nominal: -77 dBV.

Maximum Voltage Gain (± 3 dB):
CH IN to SUB OUT & MON OUT: 78 dB.
CH IN to MAIN OUT: 86 dB.
CH IN to CH INSERT: 52 dB.
CH IN to AUX OUT (post CH fader): 88 dB.
AUX RETURN to SUB OUT & MON OUT: 20 dB.
AUX IN to AUX OUT: 10 dB.
MON IN to MON OUT: 10 dB.

Input Channel Equalization: (15 dB maximum boost or cut)
HIGH: 10 kHz (Shelving).
MID: 300 Hz to 5 kHz (Peaking).
LOW: 100 Hz (Shelving).

Input Channel Gain Control:
Lo-Z input: 40 dB (12 dB to 52 dB).
Hi-Z input: 38 dB (-11 dB to 27 dB).

Crosstalk:
Adjacent channel inputs: -65 dB typical at 1 kHz.
Input to output: -60 dB typical at 1 kHz.

VU Meters:
(All meters are calibrated for 0 VU = +4 dBu output.)
2 illuminated meters
LEFT/MAIN,
RIGHT/MONITOR/PFL.

Clip Indicators:
Input Channel: +16 dBu (4 dB before clipping).
VU Meters: +14 dBu (10 dB before clipping).

Lamp Connector: 12 Vac, 375 mA maximum.

Phantom Power: +4S Vdc on electronically balanced microphone inputs (6.8kohm source impedance).

Power Requirements 115v or 230v, 50/60 Hz (switchable)

Power Consumption 50 watts.

Console Dimensions
Vector 8: 19"x6.63"x17.5" (483x168x445mm).
Vector 12: 24"x6.25"x20.75" (610x159x527mm).
Vector 16: 29"x6.25"x20.75" (737x159x527mm).
Vector 24: 39"x6.25"x20.75" (991x159x527mm).

Console Net Weight
Vector 8: 27 lbs (12.3 kgs).
Vector 12: 33 lbs (15 kgs).
Vector 16: 40 lbs (18.2 kgs).
Vector 24: 53 lbs (24 kgs).

EV/DYNACORD continually strives to improve products and performance. Therefore, these specifications are subject to change without notice.

Input Terminals		Gain Trim	Actual Load Impedance	For Use with Nominal	Input Level			Connector In Mixer
					Sensitivity	Nominal	Max. before Clip	
CH Input	Lo-Z	52 dB	4.4k Ω	50-600 Ω mics	-72 dBu (0.20mV)	-52 dBu (1.95mV)	-32 dBu (19.5mV)	XLR-3 female & Phone Jack (TRS)
	Hi-Z	27 dB	60k Ω	600 Ω lines	-47 dBu (3.45mV)	-27 dBu (34.5mV)	-7 dBu (345mV)	
AUX RETURN (1,2)			5k Ω	600 Ω lines	-16 dBu (122mV)	+4 dBu (1.22V)	—	Phone Jack
INSERT IN	CH (1-7)		5k Ω	600 Ω lines	-22 dBu (616mV)	-2 dBu (616mV)	+20 dBu (7.75V)	Phone Jack (TRS)
	SUB (LR)		5k Ω	600 Ω lines	-12 dBu (195mV)	-2 dBu (616mV)	—	
AUX IN, MON IN			20k Ω	600 Ω lines	-6 dBu (388mV)	+4 dBu (1.22V)	+25 dBu (15.5V)	Phone Jack
TAPE RTN			5k Ω	600 Ω lines	-20 dBV (100mV)	-10 dBV (315mV)	—	RCA Pin Jack

NOTES: (1) Sensitivity is the lowest level that will produce a SUB output of +4 dBu (1.22V), the nominal output level when the unit is set to maximum gain (all faders and level controls are in maximum position).
(2) XLR-3 type connectors are balanced. CH Phone Jacks are balanced (T = +, R = -, S = GND). Other Phone Jacks and RCA Pin Jacks are unbalanced. Insert Phone Jacks are unbalanced (T = OUT, R = IN, S = GND).
(3) * Vector 8: 8 Ch, Vector 12: 12 Ch, Vector 16: 16 Ch, Vector 24: 24 Ch.

Output Terminals	Actual Source Impedance	For Use with	Output Level		Connector in Mixer
			Nominal	Max. before Clip	
SUB OUT (LR)	150 Ω	600 Ω lines	+4 dBu (1.22V)	+24 dBu (12.3V)	XLR-3 male
MAIN OUT	150 Ω	600 Ω lines	+4 dBu (1.22V)	+24 dBu (12.3V)	XLR-3 male
MONITOR OUT	150 Ω	600 Ω lines	+4 dBu (1.22V)	+24 dBu (12.3V)	XLR-3 male
AUX SEND (1,2)	100 Ω	10k Ω lines	+4 dBu (1.22V)	+20 dBu (7.75V)	Phone Jack
CH INSERT (1-7)	100 Ω	10k Ω lines	-2 dBu (616mV)	+20 dBu (7.75V)	Phone Jack (TRS)
SUB INSERT (LR)	75 Ω	10k Ω lines	-2 dBu (616mV)	+20 dBu (7.75V)	Phone Jack (TRS)
TAPE RECORD (LR)	750 Ω	10k Ω lines	-10 dBV (315mV)	+10 dBV (3.15V)	RCA Pin Jack
PHONES OUT	100 Ω	8 Ω phones	1 mW	25 mW	Same
		40 Ω phones	3 mW	75 mW	Phones Jack

NOTES: (1) XLR-3 type connectors are balanced. CH Phone Jacks are balanced (T = +, R = -, S = GND). Other Phone Jacks and RCA Pin Jacks are unbalanced. Insert Phone Jacks are unbalanced (T = OUT, R = IN, S = GND).
(2) * Vector 8: 8 Ch, Vector 12: 12 Ch, Vector 16: 16 Ch, Vector 24: 24 Ch.

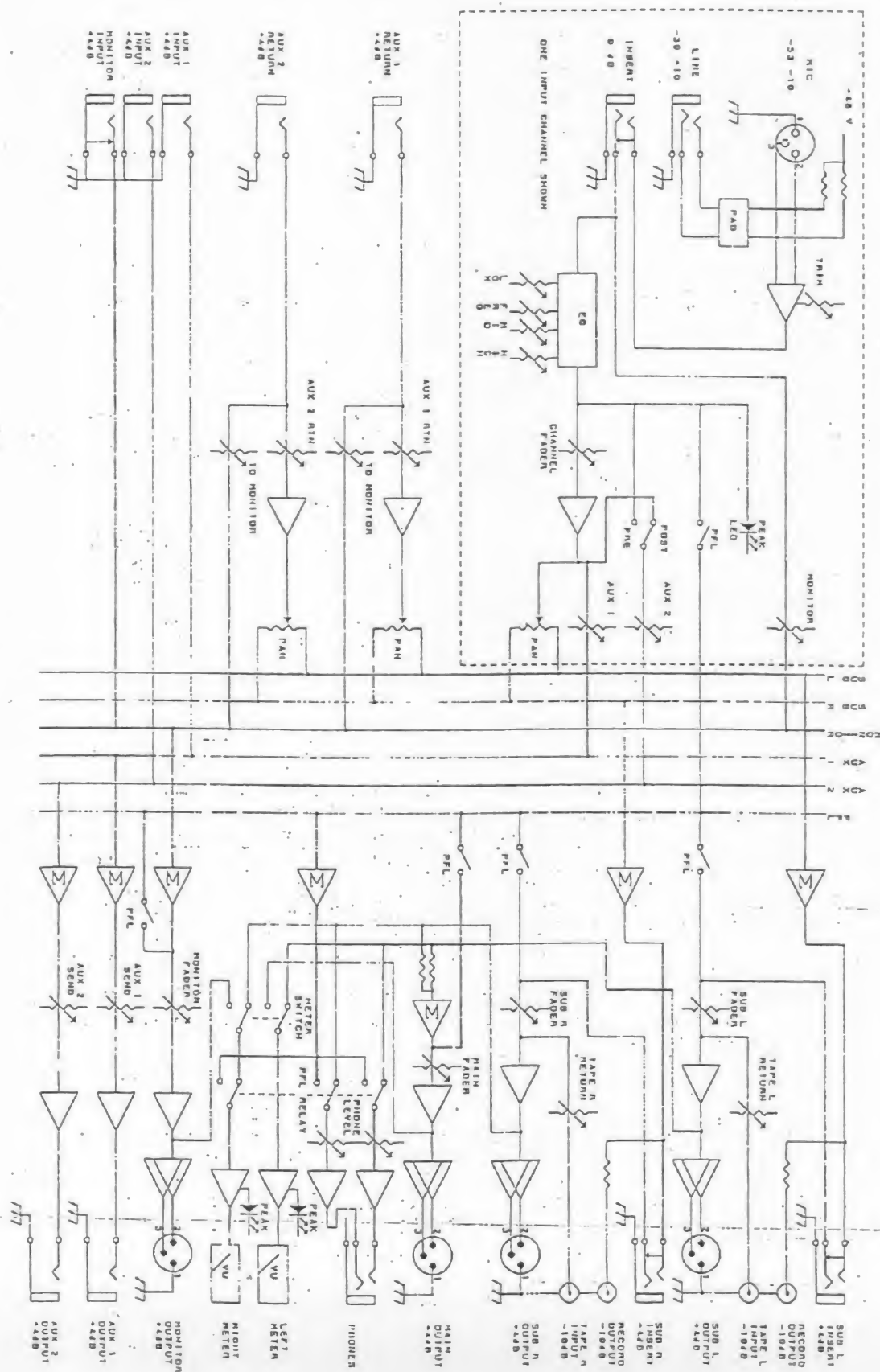


Figure 10: Signal Flow Diagram

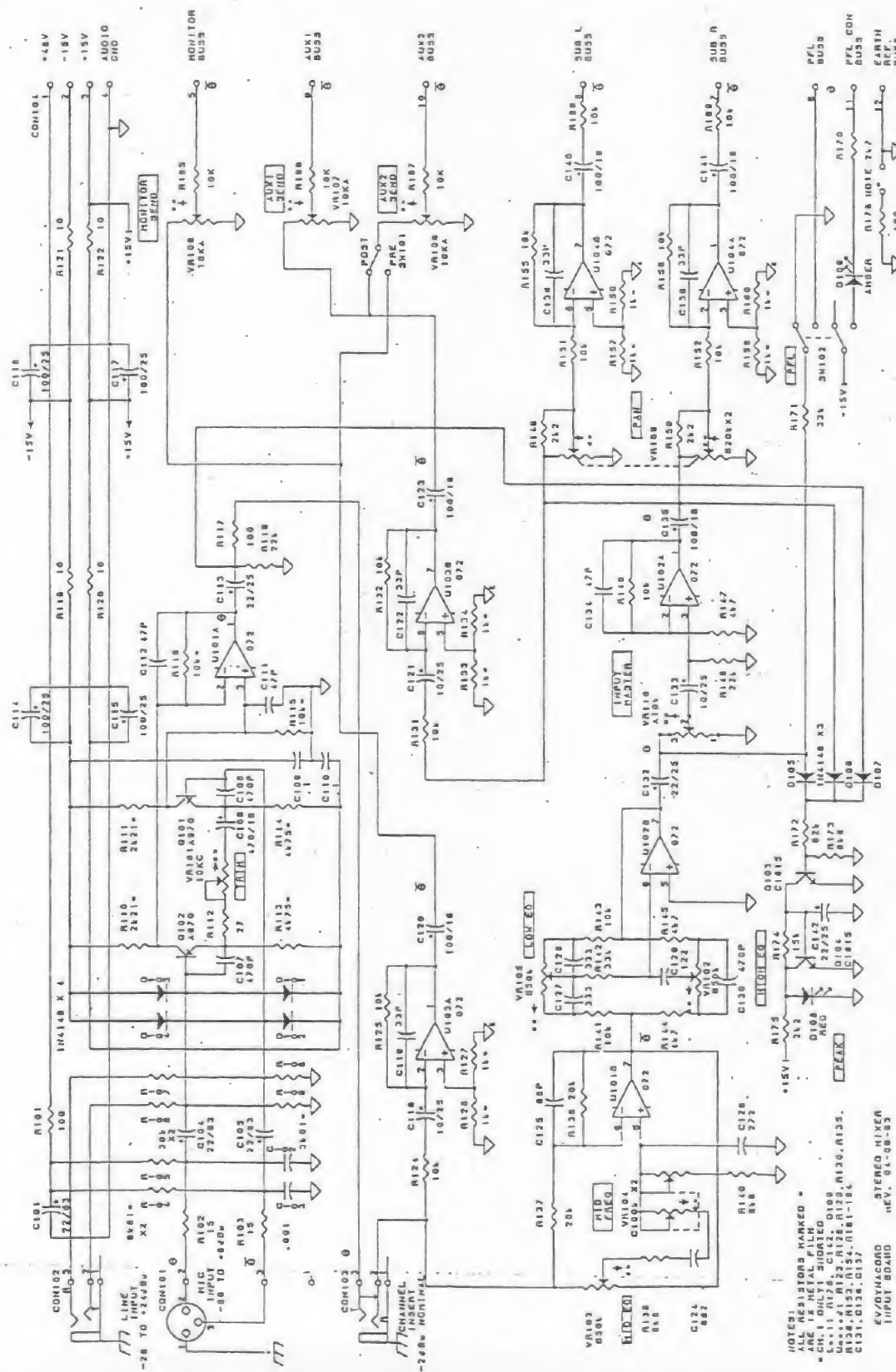


Figure 13: Input Board Schematic

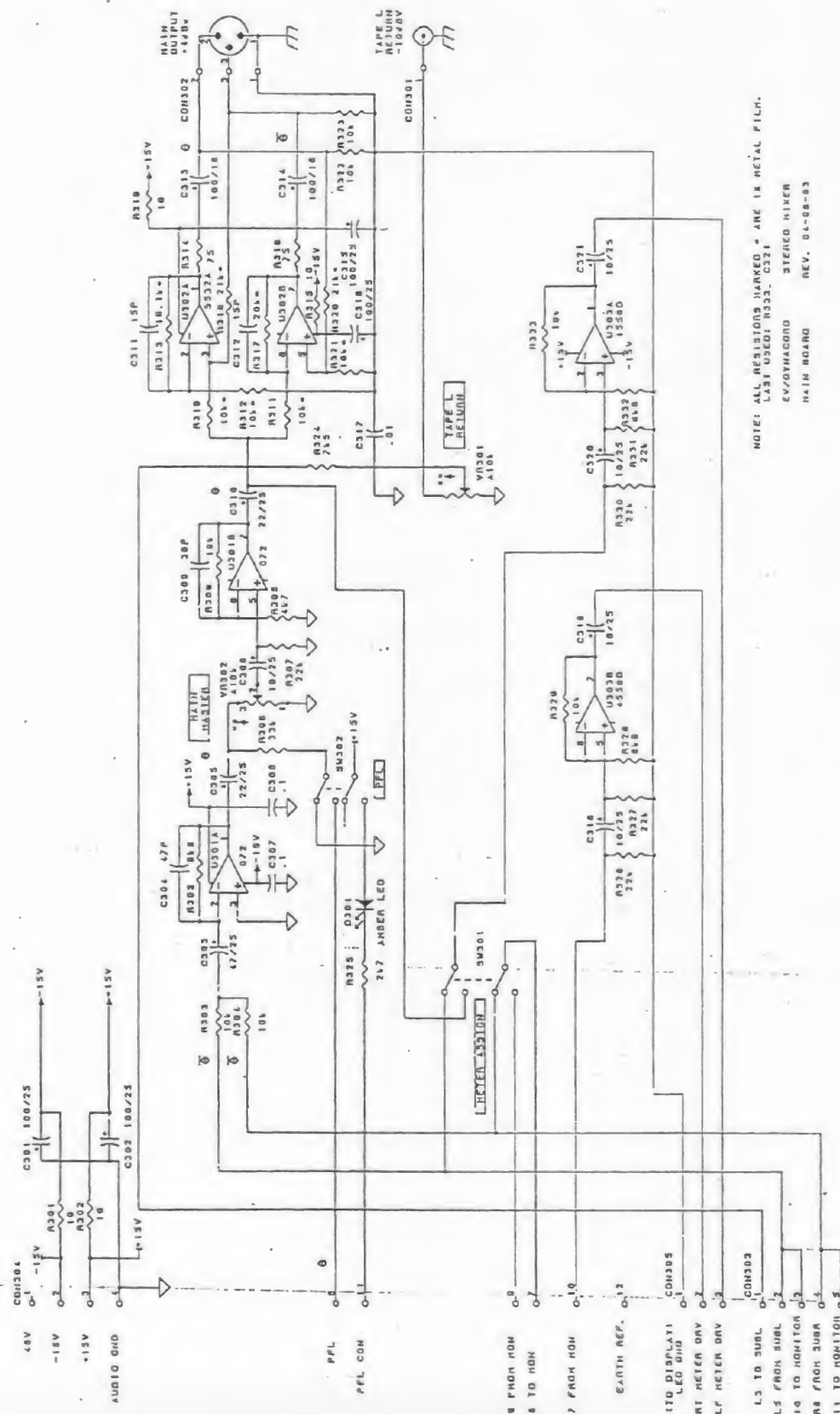


Figure15: Main Board Schematic

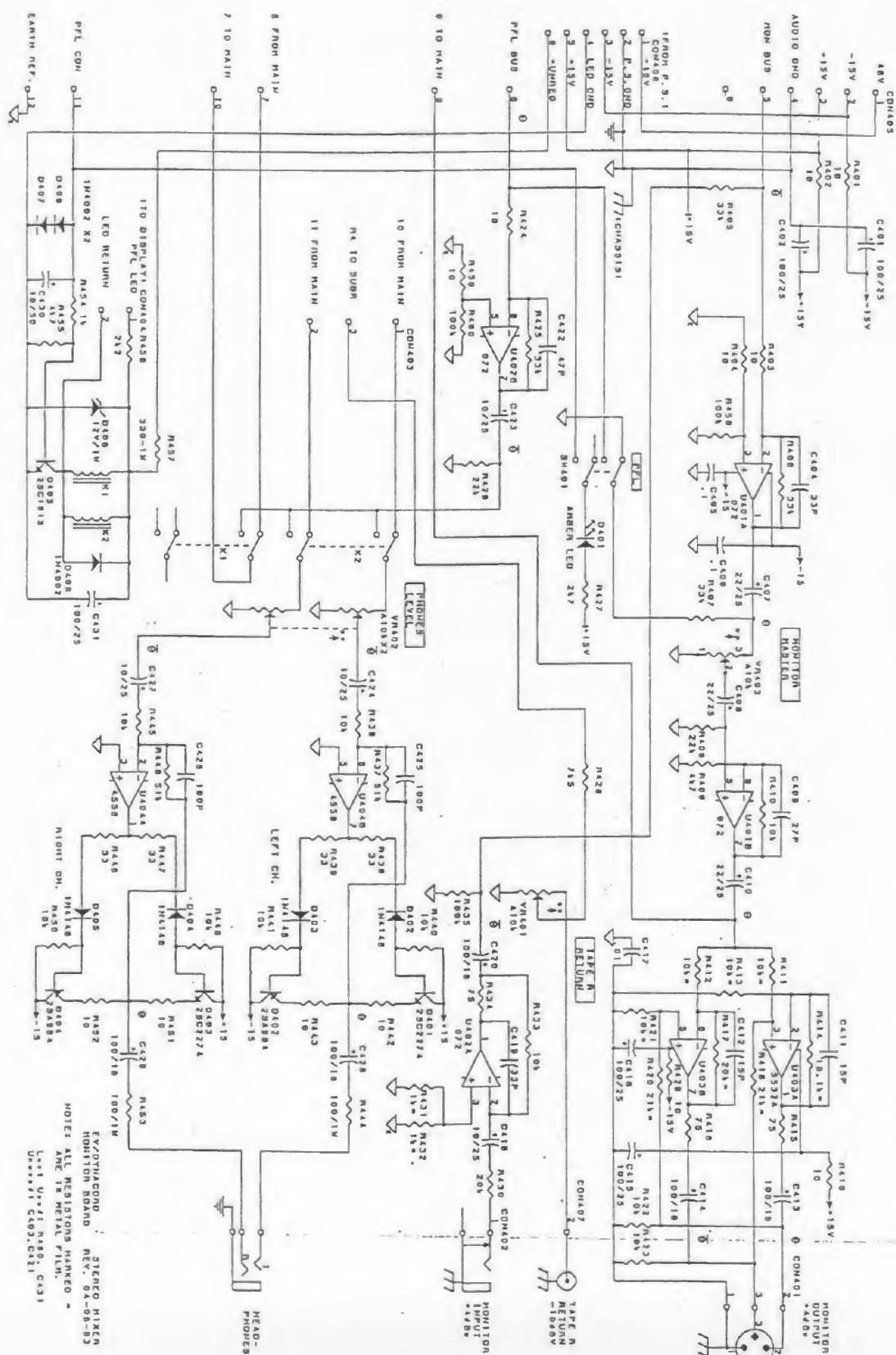
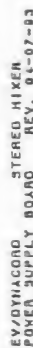


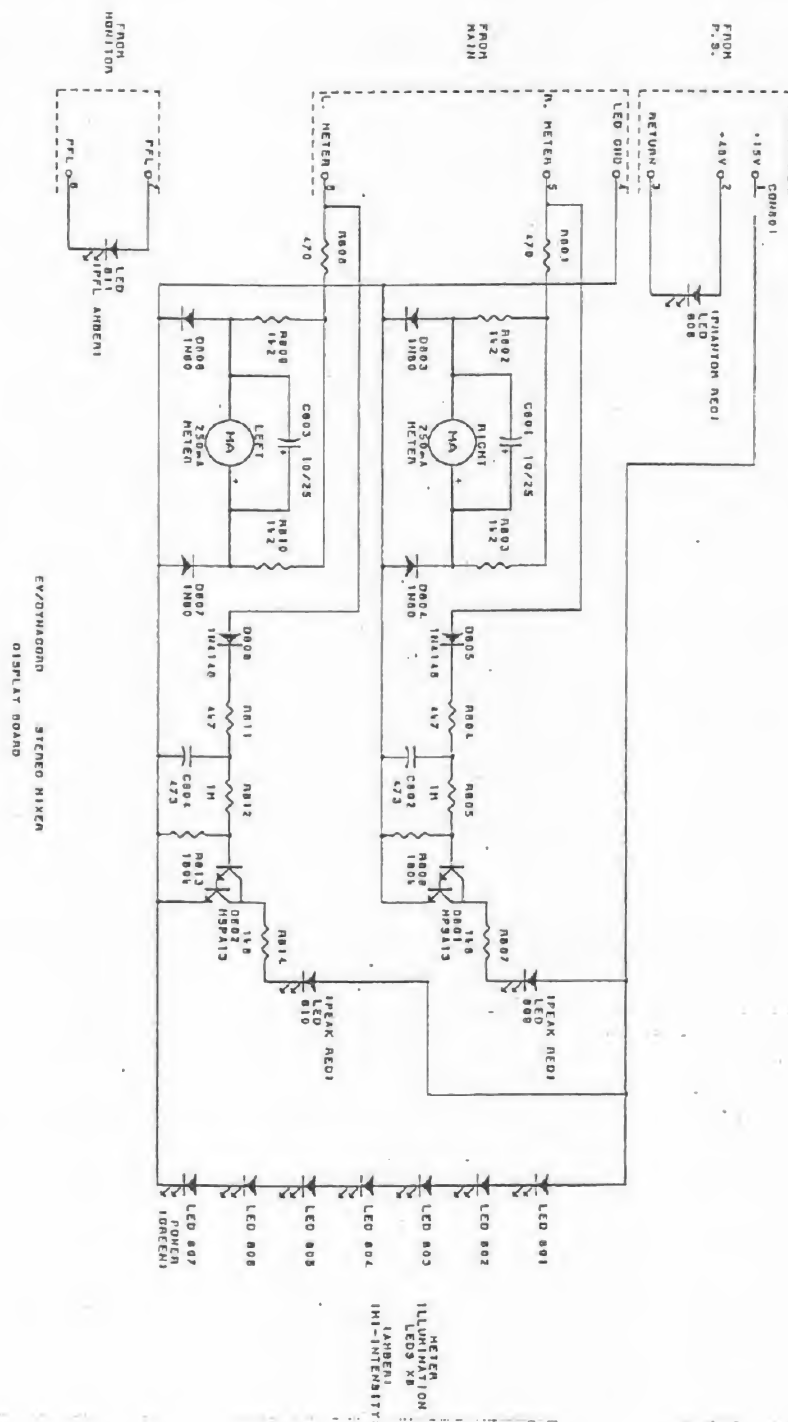
Figure 16: Monitor Board Schematic



1. RESISTANCE VALUES ARE INDICATED IN OHMS UNLESS OTHERWISE SPECIFIED.
2. CAPACITANCE VALUES ARE SHOWN IN MICROFARADS UNLESS OTHERWISE NOTED.
3. (P-PI-CAPACITOR) 193 = 0.18- μ F NYLON, 104 = 0.1- μ F NYLON (a.c.)
4. RESISTORS ARE 5% CARBON FILM, 75W UNLESS OTHERWISE SPECIFIED.
(ϕ DENOTES 1% METAL FILM, 25W.)
5. POSITIVE ION REGULATORS ARE LM340-15 FOR 24 CHANNEL UNITS.

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Component Parts List

Main Assembly

Reference Designator	Ordering Number	Name and Description
N/A	A14-01-038890	Plastic Meter Pod (Vector 12, 16, and 24)
N/A	A14-02-029115U	Vinyl Cap, BNC
N/A	A21-01-028398	Conn, XLR Jack, Female
N/A	A21-01-028472	Phonejack, Mono, Grounded (AUX IN, SEND, RTN)
N/A	A21-01-028473	Phonejack, Mono, Shorting, Grounded (MON IN)
N/A	A21-01-028641	Phonejack, Stereo, Grounded (LINE INPUTS)
N/A	A21-01-107505	Phonejack, Stereo (HEADPHONES) (Vector 12, 16, and 24)
N/A	A21-01-036190U	Phonejack, Stereo, Shorted, Grounded (INSERTS)
N/A	A21-02-122141	Conn, XLR Jack, Male
N/A	A21-02-036195U	Conn, IEC, AC Power
N/A	A21-01-036194U	Phonejack RCA Chassis Mount
N/A	A21-02-036198U	Conn, BNC
N/A	A28-03-125230U	Waher, BNC
N/A	A28-02-125229U	Nut, Hex, BNC
N/A	A21-03-036197U	Lug, Solder
N/A	A24-04-036204U	Knob, Slide, Black w/White Stripe
N/A	A24-04-038872	Knob, Cap-Black/W. BD-Black
N/A	A24-04-038873	Knob, Push Button Cool Gray 10C
N/A	A24-04-038874	Knob, Cap-Red/W. BD-Black
N/A	A24-04-038875	Knob, Cap-M.Gray/W. BD-Black
N/A	A24-04-038876	Knob, Cap-Blue/W. BD-Black
N/A	A24-04-038877	Knob, Cap-Green/W. BD-Black
N/A	A24-04-038878	Knob, Slide, Black W/Red Stripe
N/A	A42-01-038884	Carton Box EV/DYNACORD Vector 8
N/A	A42-01-038885	Carton Box EV/DYNACORD Vector 12
N/A	A42-01-038886	Carton Box EV/DYNACORD Vector 16
N/A	A42-01-038887	Carton Box EV/DYNACORD Vector 24
N/A	A47-06-037608U	Pot, Slide 60mm; A 10K X 1 (Vector 8)
N/A	A47-06-029098U	Pot, Slide 100mm; A 10K X1 (Vector 12, 16, and 24)
N/A	A51-02-026775	Swth, Rocker, 250 V SPST
N/A	A51-02-029099U	Swth, Slide; Phantom
N/A	A51-02-036196U	Switch, Line Select 115/230V
N/A	A51-04-036199U	Fuse 250mA 250V SB 5x20 CSAVDE
N/A	A51-04-036193U	Fuse 400mA 250V SB 6x32 UL CSA (Vector 8, 12, and 16)
N/A	A51-04-109448	Fuse 500mA 250V SB 6x32 UL CSA (Vector 24)
N/A	A51-04-026779	Fuse Holder Chassis Mount
N/A	A51-07-026796	Fuse Cap 6x32
N/A	A51-07-026866	Fuse Cap 5x20
N/A	A56-08-029101U	Transformer, Power (Vector 8, 12, and 16)
N/A	A56-08-038891	Transformer, Power (Vector 24)
N/A	A60-06-124962	Linecord Detachable SJT CSA
N/A	A60-09-038880	Buss Cable CT100F22-12 Vector 8
N/A	A60-09-038881	Buss Cable CT100F22-12 Vector 12
N/A	A60-09-038882	Buss Cable CT100F22-12 Vector 16
N/A	A60-09-038883	Buss Cable CT100F22-12 Vector 24
N/A	A60-14-029121U	Cable, Insert Patching

Input Board Assembly (A27-01-038695)

Reference Designator	Ordering Number	Name and Description
C120,123,135,140,141	A15-01-028048	Cap.E.R.A. 16v, 100 μ F M
C106	A15-01-037014	Cap.E.R.A. 16v, 470 μ F M
C118,121,133	A15-01-122935	Cap.E.R.A. 25v, 10 μ F M
C113,132,142	A15-01-125228U	Cap.E.R.A. 25v, 22 μ F M
C114,115,116,117	A15-01-026639	Cap.E.R.A. 25v, 100 μ F M
C101,104,105	A15-01-124504	Cap.E.R.A. 63v, 22 μ F M
C129	A15-06-028007	Cap. M. 50v, 122K
C126	A15-06-124692	Cap. M. 50v, 272K
C124	A15-06-028853	Cap. M. 50v, 682K
C127,128	A15-06-028021	Cap. M. 50v, 333K
C119,122,133,139	A15-02-037136I	Cap.CD 50v, 33 PF K NPO
C111,112,134	A15-02-028578	Cap.CD 50v, 47 PF K NPO
C125	A15-02-027454	Cap.CD 50v, 68 PF K NPO 6.35
C107,108,130	A15-02-100035	Cap.CD 100v, 470 PF K 6.35
C109,110	A15-02-028893	Cap.CD 50v, 104 M Y5P 6.35
C102,103	A15-02-037138I	Cap.CD 50v, 102 M Y5P 6.35
VR101	A47-06-029097U	VR. 16 mm C 10K X 1K20
VR102,103,105	A47-06-027344	VR. 16 mm B 50K X 1K20 CC
VR104	A47-06-029093U	VR. 16 mm C100K X 2K20
VR106,107,108	A47-06-029096U	VR. 16 mm A 10K X 1K20
VR109	A47-06-038870	VR. 16 mm B 20K X 2K20 CC
R113,114	A47-03-124672	Res MF .25w, 1%, 4.75K ohm
R115,116	A47-03-109437	Res MF .25w, 1%, 10.0K ohm
R126,127,133,134,157,158,159,160	A47-03-121532	Res MF .25w, 1%, 1.00K ohm
R110,111	A47-03-124957	Res MF .25w, 1%, 2.21K ohm
R108,109	A47-03-124678	Res MF .25w, 1%, 3.01K ohm
R104,105	A47-03-027374	Res MF .25w, 1%, 6.81K ohm
R119,120,121,122	A47-01-102030	Res CF .25w, 5%, 10 ohm
R102,103	A47-01-028828	Res CF .25w, 5%, 15 ohm
R112	A47-01-102040	Res CF .25w, 5%, 27 ohm
R101,117,176	A47-01-102054	Res CF .25w, 5%, 100 ohm
R149,150,175	A47-01-102086	Res CF .25w, 5%, 2.2K ohm
R170	A47-01-102088	Res CF .25w, 5%, 2.7K ohm
R144,145,147	A47-01-102094	Res CF .25w, 5%, 4.7K ohm
R139,140,173	A47-01-102098	Res CF .25w, 5%, 6.8K ohm
R124,125,131,132,141,143,148,151,152,155,156,165,166,167,168,169	A47-01-102102	Res CF .25w, 5%, 10K ohm
R174	A47-01-102106	Res CF .25w, 5%, 15K ohm
R137,138	A47-01-102109	Res CF .25w, 5%, 20K ohm
R118,146	A47-01-102110	Res CF .25w, 5%, 22K ohm
R106,107	A47-01-102113	Res CF .25w, 5%, 30K ohm
R142,171	A47-01-102114	Res CF .25w, 5%, 33K ohm
R172	A47-01-102122	Res CF .25w, 5%, 62K ohm
Q101,102	A48-03-028829	TR, LN PNP 2SA991,2SA970BL
Q103,104	A48-03-026624	TR, GP NPN 2SC1815Y
U101,102,103,104	A17-01-124688	IC, OPAMP, TL072CP TI
D101,102,103,104,105,106,107	A48-01-122601	Diode, SW, 1N4148
D108	A39-01-026843	LED, 3MM, Red RT3-234ADS
D109	A39-01-036189U	LED, 3MM, Yellow RT3-334ADS
SW101,102	A51-02-029100U	SW, PB.H. DPDT
N/A	A14-08-038916	Bracket, VR

Sub Board Assembly (A27-01-038694)

Reference Designator	Ordering Number	Name and Description
C207,210,211,212,223,224,227, 230,236	A15-01-028048	Cap.E.RA. 16v, 100 μ F M
C218,225,228,234	A15-01-122935	Cap.E.RA. 25v, 10 μ F M
C219,233	A15-01-125228U	Cap.E.RA. 25v, 22 μ F M
C208	A15-01-124341	Cap.E.RA. 25v, 47 μ F M
C201,202,213,214	A15-01-026639	Cap.E.RA. 25v, 100 μ F M
C209,235	A15-02-125223U	Cap.CD 50v, 22 PF K NPO
C217,232	A15-02-037203I	Cap.CD 50v, 27 PF K NPO
C206,221,222,226,229	A15-02-037136I	Cap.CD 50v, 33 PF K NPO
C220	A15-02-100307	Cap.CD 100v, 103 M Y5P 6.35
C203,204	A15-02-028693	Cap.CD 50v, 104 M Y5P 6.35
C215,216	A15-02-029032	Cap.CD 50v, 15 PF K NPO
VR201,202,203	A47-06-029096U	VR. 16 mm A 10K X 1K20
VR204	A47-06-038870	VR. 16 mm B 20K X 2K20 CC
R213,214,215,223	A47-03-109437	Res MF .25w, 1%, 10.0K ohm
R216	A47-03-124617	Res MF .25w, 1%, 19.1K ohm
R220	A47-03-109434	Res MF .25w, 1%, 20.0K ohm
R218,224	A47-03-027369	Res MF .25w, 1%, 21.0K ohm
R236,237,238,239,250,251,260,261	A47-03-121532	Res MF .25w, 1%, 1.0K ohm
R201,202,203,204,219,222,266,267	A47-01-102030	Res CF .25w, 5%, 10 ohm
R206,207,217,221,242,243,253,263	A47-01-102051	Res CF .25w, 5%, 75 ohm
R272	A47-01-102054	Res CF .25w, 5%, 100 ohm
R209	A47-01-102082	Res CF .25w, 5%, 1.5K ohm
R210	A47-01-026841	Res CF .25w, 5%, 1.6K ohm
R230,231	A47-01-102086	Res CF .25w, 5%, 2.2K ohm
R257	A47-01-102088	Res CF .25w, 5%, 2.7K ohm
R270	A47-01-027462	Res CF .25w, 5%, 9.1K ohm
R205,208,225,226,229,234,235,240, 241,246,247,252,255,262	A47-01-102102	Res CF .25w, 5%, 10K ohm
R211	A47-01-102106	Res CF .25w, 5%, 15K ohm
R228	A47-01-102108	Res CF .25w, 5%, 18K ohm
R249,259	A47-01-102109	Res CF .25w, 5%, 20K ohm
R227,269,273	A47-01-102110	Res CF .25w, 5%, 22K ohm
R256,265,268	A47-01-102114	Res CF .25w, 5%, 33K ohm
R212,271	A47-01-102119	Res CF .25w, 5%, 47K ohm
R264,274,275	A47-01-102127	Res CF .25w, 5%, 100K ohm
U202,204,206	A17-01-124688	IC, OPAMP, TL072CP TI
U201,203,205	A17-01-122832	IC, OPAMP, NE5532AN SIG
D201	A39-01-036189U	LED, 3mm, Yellow RT3-334ADS
SW201	A51-02-029100U	SW, PB.H. DPDT
N/A	A14-08-038916	Bracket, VR

Main Board Assembly (A27-01-038693)

Reference Designator	Ordering Number	Name and Description
C313,314	A15-01-028048	Cap.E.RA. 16v, 100 μ F M
C306,318,319,320,321	A15-01-122935	Cap.E.RA. 25v, 10 μ F M
C305,310	A15-01-125228U	Cap.E.RA. 25v, 22 μ F M
C303	A15-01-124341	Cap.E.RA. 25v, 47 μ F M
C301,302,315,316	A15-01-026639	Cap.E.RA. 25v, 100 μ F M
C304	A15-02-028578	Cap.CD 50v, 47 PF K NPO
C317	A15-02-100307	Cap.CD 100v, 103 M Y5P 6.35
C307,308	A15-02-028693	Cap.CD 50v, 104 M Y5P 6.35
C311,312	A15-02-029032	Cap.CD 50v, 15 PF K NPO
C309	A15-02-125222U	Cap.CD 50v, 30 PF K NPO
VR301	A47-06-029096U	VR. 16 mm A 10K X 1K20
R310,311,312,321	A47-03-109437	Res MF .25w, 1%, 10.0K ohm
R313	A47-03-124617	Res MF .25w, 1%, 19.1K ohm
R317	A47-03-109434	Res MF .25w, 1%, 20.0K ohm
R316,320	A47-03-027369	Res MF .25w, 1%, 21.0K ohm
R301,302,315,319	A47-01-102030	Res CF .25w, 5%, 10 ohm
R314,318	A47-01-102051	Res CF .25w, 5%, 75 ohm
R325	A47-01-102088	Res CF .25w, 5%, 2.7K ohm
R308	A47-01-102094	Res CF .25w, 5%, 4.7K ohm
R305,328,332	A47-01-102098	Res CF .25w, 5%, 6.8K ohm
R324	A47-01-102099	Res CF .25w, 5%, 7.5K ohm
R303,304,309,322,323,329,333	A47-01-102102	Res CF .25w, 5%, 10K ohm
R307,326,327,330,331	A47-01-102110	Res CF .25w, 5%, 22K ohm
R306	A47-01-102114	Res CF .25w, 5%, 33K ohm
U303	A17-01-027463	IC, OPAMP, NJM4558DD JRC
U301	A17-01-124688	IC, OPAMP, TL072CP TI
U302	A17-01-122832	IC, OPAMP, NE5532AN SIG
D301	A39-01-036189U	LED, 3mm, Yellow RT3-334ADS
SW301,302	A51-02-029100U	SW, PB.H. DPDT

Operating and Service Instructions for the EV/DYNACORD Vector Series Mixing Console

Monitor Board Assembly (A27-01-038879 on Vector 8) (A27-01-038696 on Vector 12, 16, and 24)

Reference Designator	Ordering Number	Name and Description
C413,414,420,426,429,431	A15-01-028048	Cap.E.RA. 16v, 100 μ F M
C418,423,424,427	A15-01-122935	Cap.E.RA. 25v, 10 μ F M
C407,408,410	A15-01-125228U	Cap.E.RA. 25v, 22 μ F M
C401,402,415,416	A15-01-026639	Cap.E.RA. 25v, 100 μ F M
C430	A15-01-124502	Cap.E.RA. 50v, 10 μ F M
C409	A15-02-037203I	Cap.CD 50v, 27 PF K NPO
C404,419	A15-02-037136I	Cap.CD 50v, 33 PF K NPO
C422	A15-02-028578	Cap.CD 50v, 47 PF K NPO
C425,428	A15-02-027455	Cap.CD 50v, 100 PF K NPO 6.35
C417	A15-02-100307	Cap.CD 100v, 103 M Y5P 6.35
C405,406	A15-02-028693	Cap.CD 50v, 104 M Y5P 6.35
C411,412	A15-02-029032	Cap.CD 50v, 15 PF K NPO
R444,453	A47-02-125221U	Res MO 1w, 5%, 100 ohm
R457	A47-02-125220U	Res MO 1w, 5%, 330 ohm
VR402	A47-06-125216U	VR. 16 mm A 10K X 2K20
VR401	A47-06-029096U	VR. 16 mm A 10K X 1K20
R411,412,413,421	A47-03-109437	Res MF .25w, 1%, 10.0K ohm
R414	A47-03-124617	Res MF .25w, 1%, 19.1K ohm
R417	A47-03-109434	Res MF .25w, 1%, 20.0K ohm
R416,420	A47-03-027369	Res MF .25w, 1%, 21.0K ohm
R431,432	A47-03-121532	Res MF .25w, 1%, 1.00K ohm
R401,402,403,404,419,424,429,442, 443,451,452,459	A47-01-102030	Res CF .25w, 5%, 10 ohm
R438,439,447,448	A47-01-102042	Res CF .25w, 5%, 33 ohm
R415,418,434	A47-01-102051	Res CF .25w, 5%, 75 ohm
R454	A47-01-102078	Res CF .25w, 5%, 1.0K ohm
R456	A47-01-102086	Res CF .25w, 5%, 2.2K ohm
R427	A47-01-102088	Res CF .25w, 5%, 2.7K ohm
R409,455	A47-01-102094	Res CF .25w, 5%, 4.7K ohm
R428	A47-01-102099	Res CF .25w, 5%, 7.5K ohm
R410,422,423,433,436,440,441,445, 449,450	A47-01-102102	Res CF .25w, 5%, 10K ohm
R430	A47-01-102109	Res CF .25w, 5%, 20K ohm
R408,426	A47-01-102110	Res CF .25w, 5%, 22K ohm
R405,406,407,425	A47-01-102114	Res CF .25w, 5%, 33K ohm
R437,446	A47-01-102120	Res CF .25w, 5%, 51K ohm
R435,458,460	A47-01-102127	Res CF .25w, 5%, 100K ohm
Q402,404	A48-03-125219U	TR, AF PNP 2SA984
Q401,403	A48-03-125218U	TR, AF NPN 2SC2274
Q405	A48-03-026624	TR, GP NPN 2SC1815Y
U404	A17-01-027463	IC, OPAMP, NJM4558DD JRC
U401,402	A17-01-124688	IC, OPAMP, TL072CP TI
U403	A17-01-122832	IC, OPAMP, NE5532AN SIG
D406,407,409	A48-01-037276I	Diode, REC. 1N4002
D402,403,404,405	A48-01-122601	Diode, SW 1N4148
D401	A39-01-036189U	LED, 3mm, Yellow RT3-334ADS
D408	A48-01-125217U	Diode, ZD 1/2W 12V 1N5252B
SW401	A51-02-029100U	SW, PB.H. DPDT
K1,K2	A45-01-036187U	Relay, TAKAMISAWA RY-12W
PHJK	A21-01-038917	Phonejack-PL55 Stereo (A27-01-038879 only)

Display Board Assembly (A27-01-038993 on Vector 8) (A27-01-037299U on Vector 12, 16, and 24)

Reference Designator	Ordering Number	Name and Description
LED608	A39-01-036177U	LED, 5mm, Red RT5-237HR
LED607	A39-01-036178U	LED, 5mm, Green RT5-537YG
LED611	A39-01-036180U	LED, 5mm, Yellow RT5-437AD
LED601,602,603,604,605,606	A39-01-036181U	LED, 5mm, Yel-HI RT5-437AT-T
LED609,610	A39-01-036179U	LED, 3mm, Red RT-3517PR
C601,603	A15-01-122935	Cap.E.RA. 25v, 10UF M
C602,604	A15-06-027367	Cap. M. 50v, 473K
R601,608	A47-01-102070	Res CF .25w, 5%, 470 ohm
R602,603,609,610	A47-01-102080	Res CF .25w, 5%, 1.2K ohm
R607,614	A47-01-102084	Res CF .25w, 5%, 1.8K ohm
R604,611	A47-01-102094	Res CF .25w, 5%, 4.7K ohm
R606,613	A47-01-109298	Res CF .25w, 5%, 180K ohm
R605,612	A47-01-108491	Res CF .25w, 5%, 1.0M ohm
Q601,602	A48-03-125224U	TR, DN NPN MPSA13
D603,604,606,607	A48-01-125214U	Diode, SG 1N60
D605,608	A48-01-122601	Diode, SW 1N4148
N/A	A29-01-037292U	Meter VU, 2.5"

Power Supply Board Assembly (A27-01-038928)

C558,559	A15-01-029111U	Cap.E.RA. 25v, 220UF M
C560,561,562,563	A15-01-038889	Cap.E.RA. 35v, 2200UF M
C564	A15-01-038945	Cap.E.RA. 63v, 220UF M
C552,554	A15-01-038944	Cap.E.RA. 100v, 4.7UF M
C555	A15-01-029112U	Cap.E.RA. 100v, 100UF M
C553	A15-06-028019	Cap. M. 100v, 183J
C551	A15-06-037215	Cap. M. 100v, 104J
C556,557	A15-02-028693	Cap.CD 50v, 104 M Y5P 6.35
R559	A47-02-125215U	Res MO 1w, 5%, 22 ohm
R552	A47-01-102068	Res CF .25w, 5%, 390 ohm
R556	A47-01-102078	Res CF .25w, 5%, 1.0K ohm
R551,553,555,557	A47-01-102102	Res CF .25w, 5%, 10K ohm
R554	A47-01-102106	Res CF .25w, 5%, 15K ohm
R550	A47-01-102110	Res CF .25w, 5%, 22K ohm
R558	A47-01-102114	Res CF .25w, 5%, 33K ohm
Q551,552	A48-03-026624	TR, GP NPN 2SC1815Y
Q554	A48-03-038399	TR, PS, NPN 2SD880
D553,554,555,556,557,558,559,560, 561,562,563,564,565	A48-01-037276I	Diode, REC. 1N4002
D551	A48-01-028581	Diode, ZD 1/2W 47V 1N5261B
U551	A17-01-038871	IC, REG. LM340T-15 NS
U552	A17-01-121659	IC, REG. LM7915CT NS

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